

FIG. 1
(Prior Art)

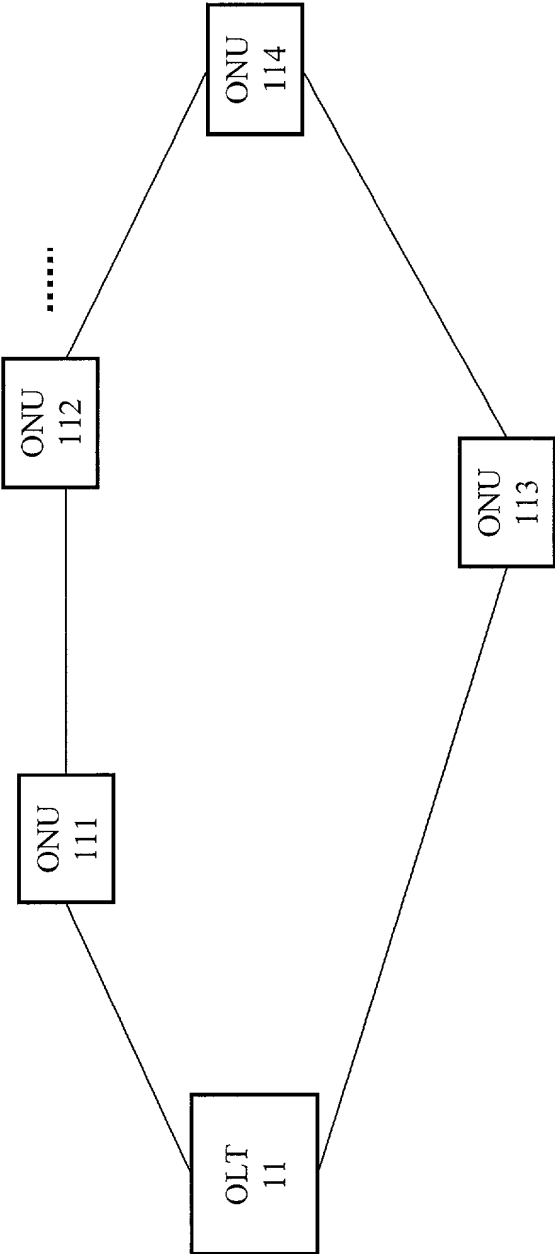


FIG. 2
(Prior Art)

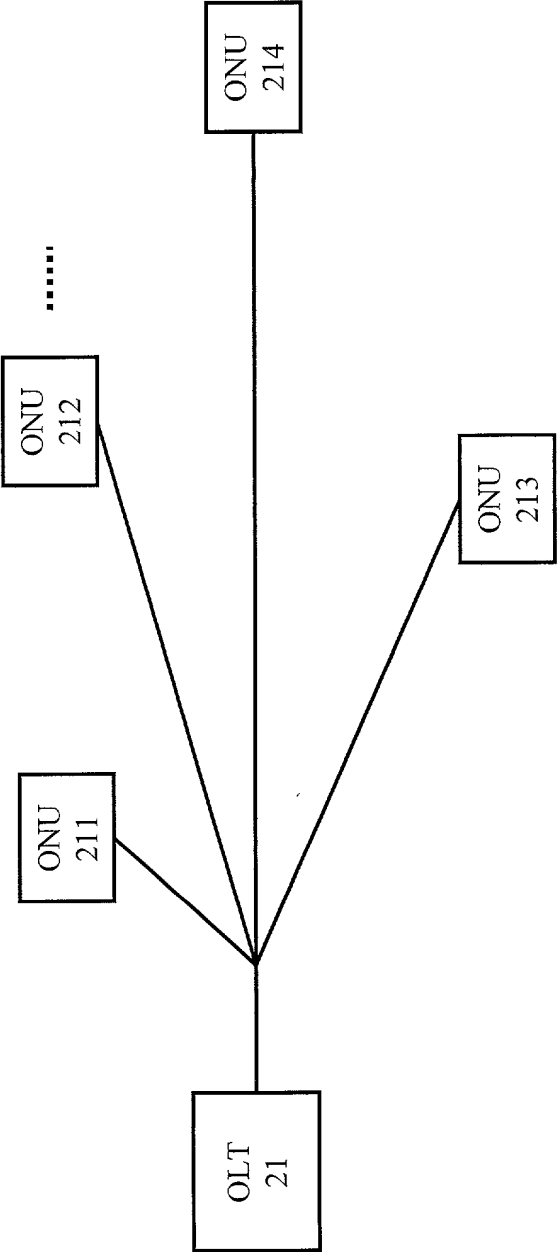


FIG. 3
(Prior Art)

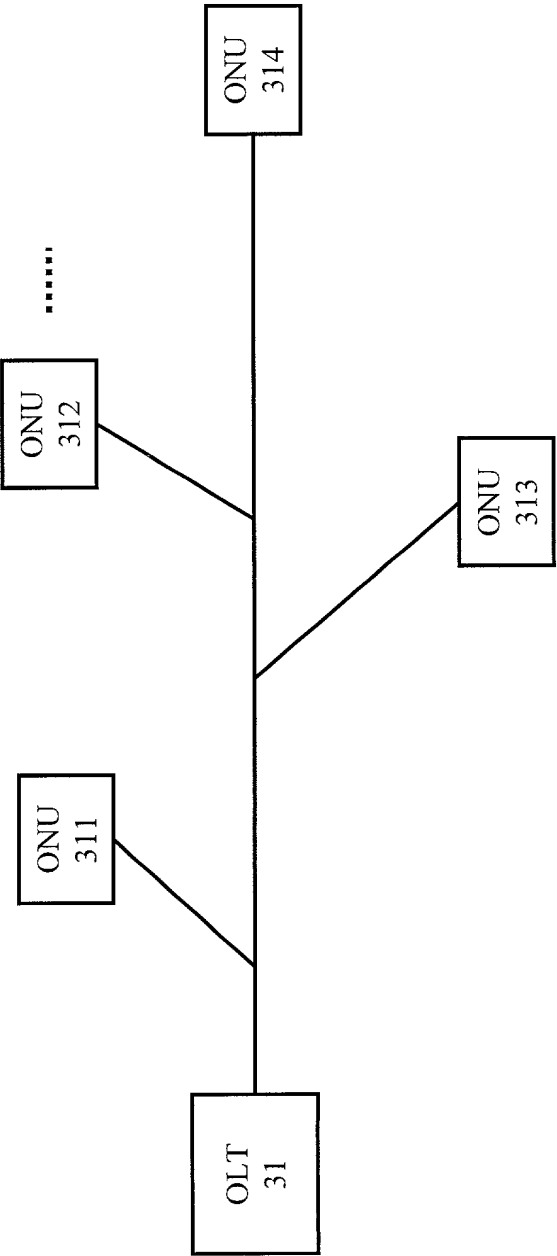


FIG. 4

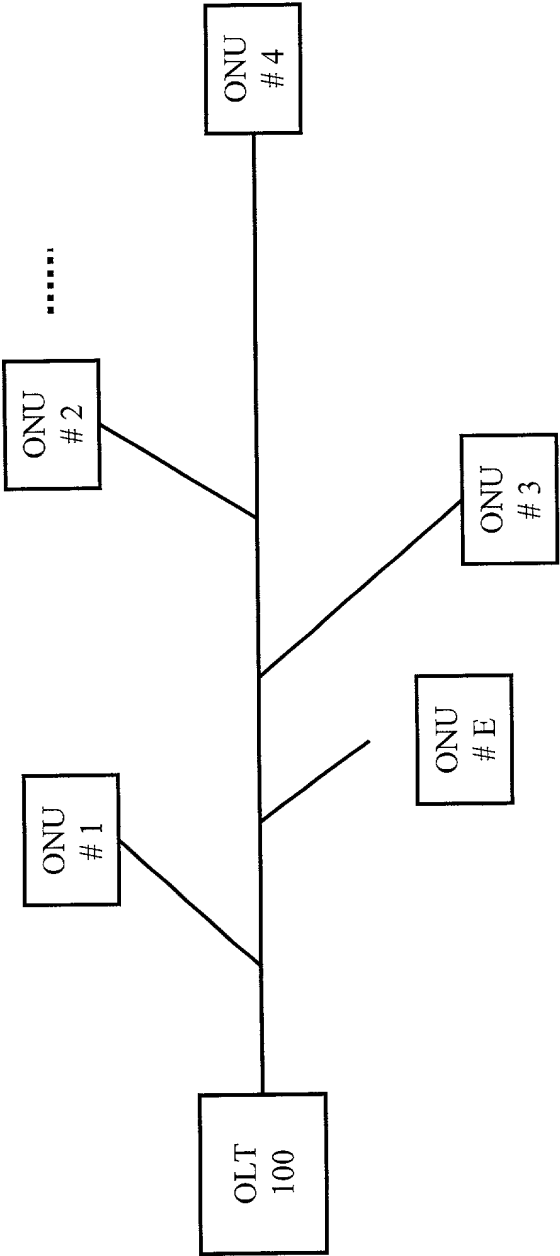


FIG. 5

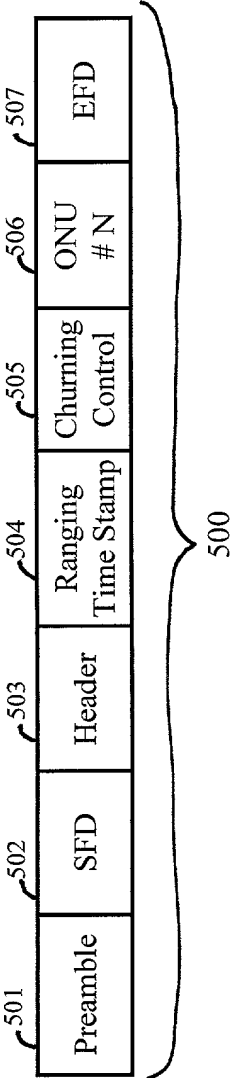


FIG. 6

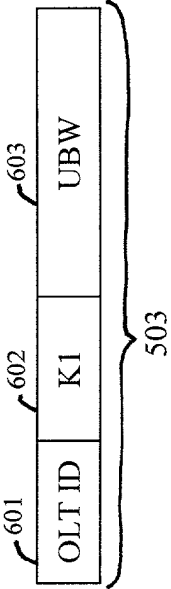


FIG. 7

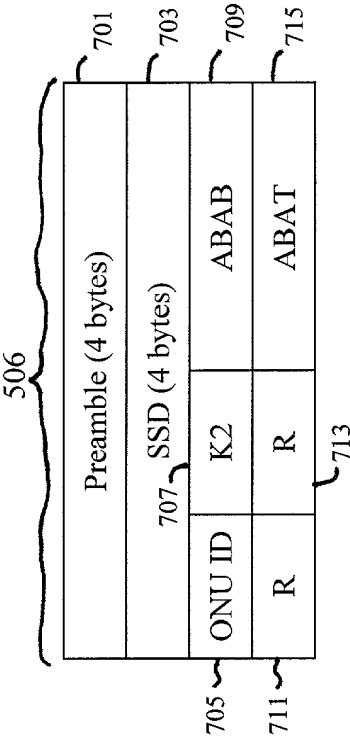


FIG. 8

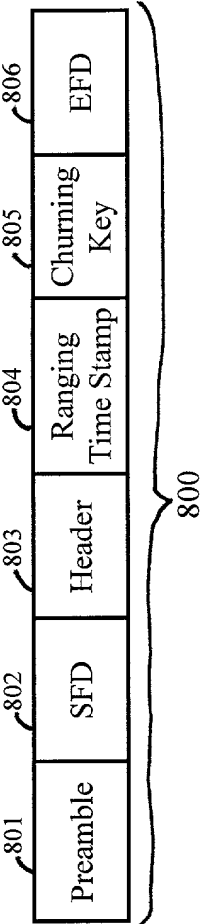


FIG. 9

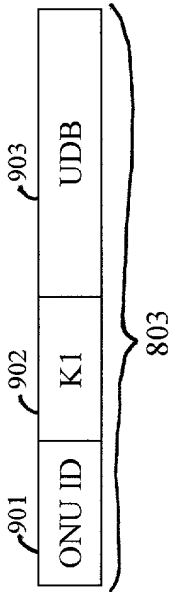


FIG. 10

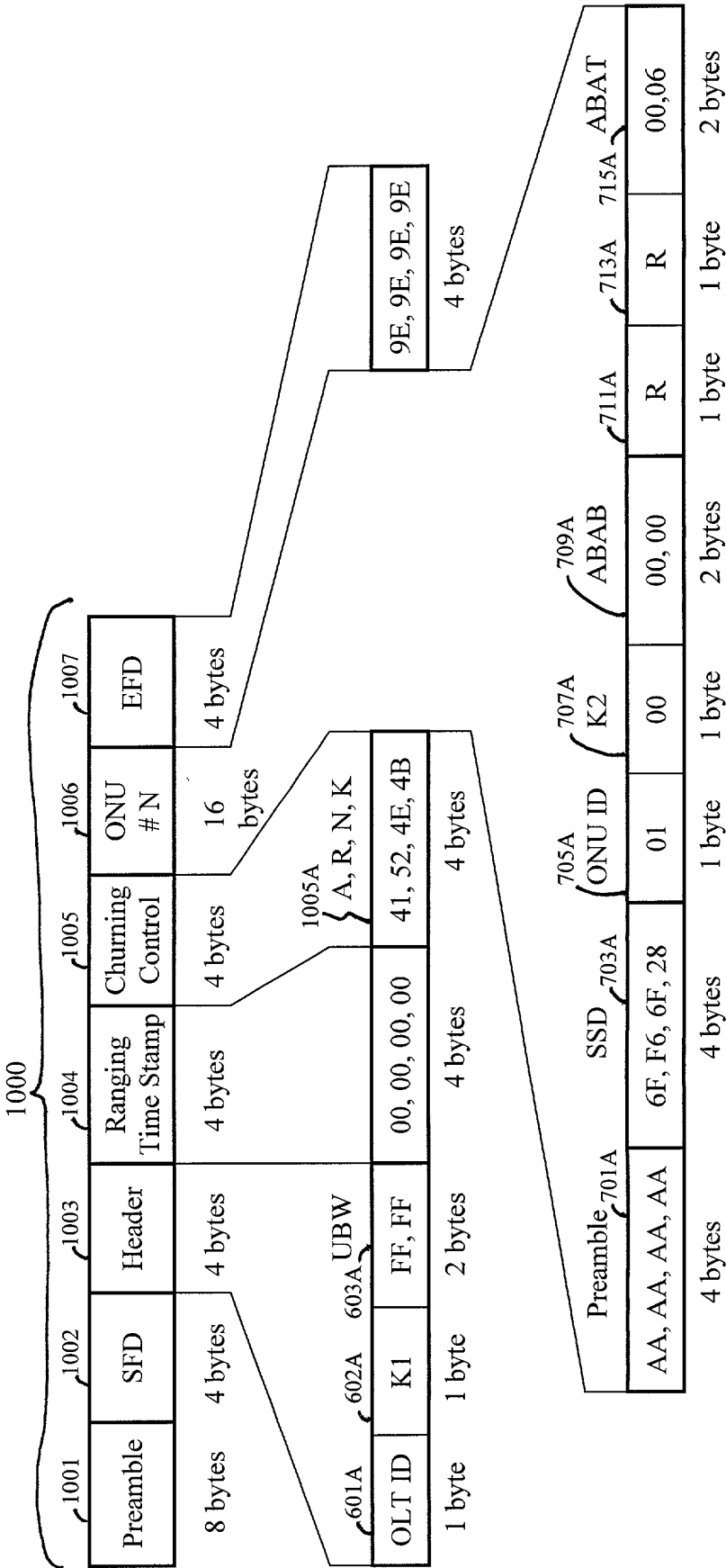


FIG. 11 is a block diagram of a frame structure 1100. The frame structure 1100 includes a Preamble 1101 (8 bytes), SFD 1102 (4 bytes), Header 1103 (4 bytes), Ranging Time Stamp 1104 (4 bytes), Churning Key 1105 (4 bytes), and EFD 1106 (4 bytes). The Header 1103 includes an ONU ID 901A (1 byte), K1 902A (1 byte), 00,00 903A (2 bytes), Churning Key (4 bytes), and 9E, 9E, 9E, 9E (4 bytes).

FIG. 11

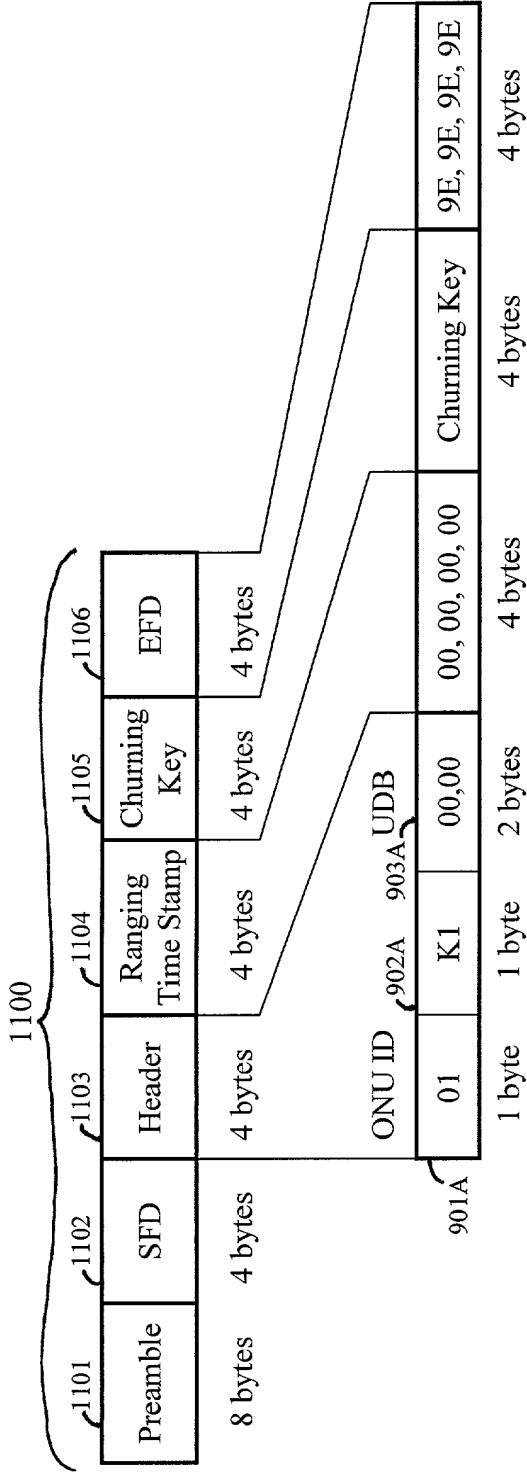


FIG. 13

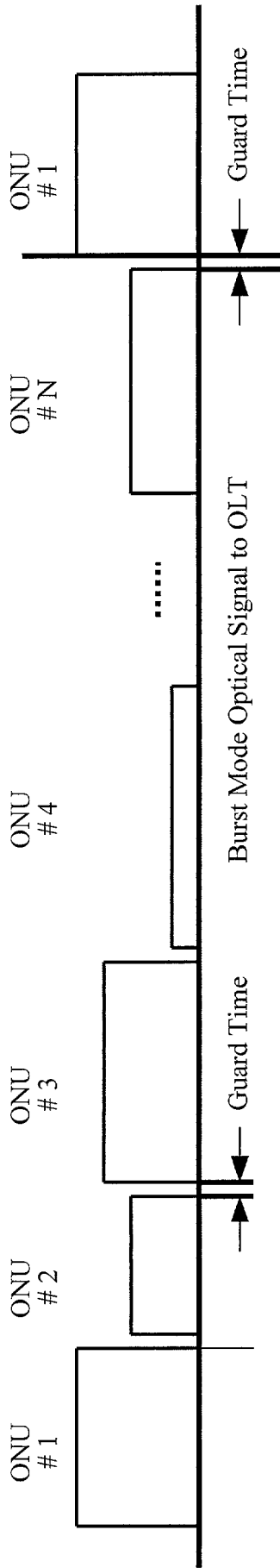


FIG. 14

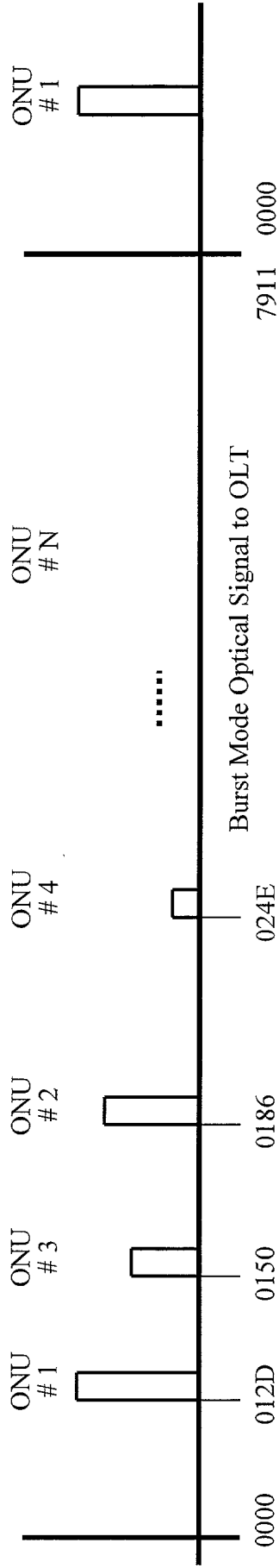


FIG. 15

	ONU # 1	ONU # 3	ONU # 2	ONU # 4
The arrived time of each ONU is:	01,2D	01,50	01,86	02,4E
The time difference between each two consecutive ONUs is:	00,23	00,36	00,C8	
• Masking each time difference with FFC0.	00,00	00,00	00,C0	
If the result is less than or equal to 0040, then set the value to 0040.	00,40	00,40		
If the result from is greater than 0040 then 0040 – the result			- 00,80	

FIG. 16

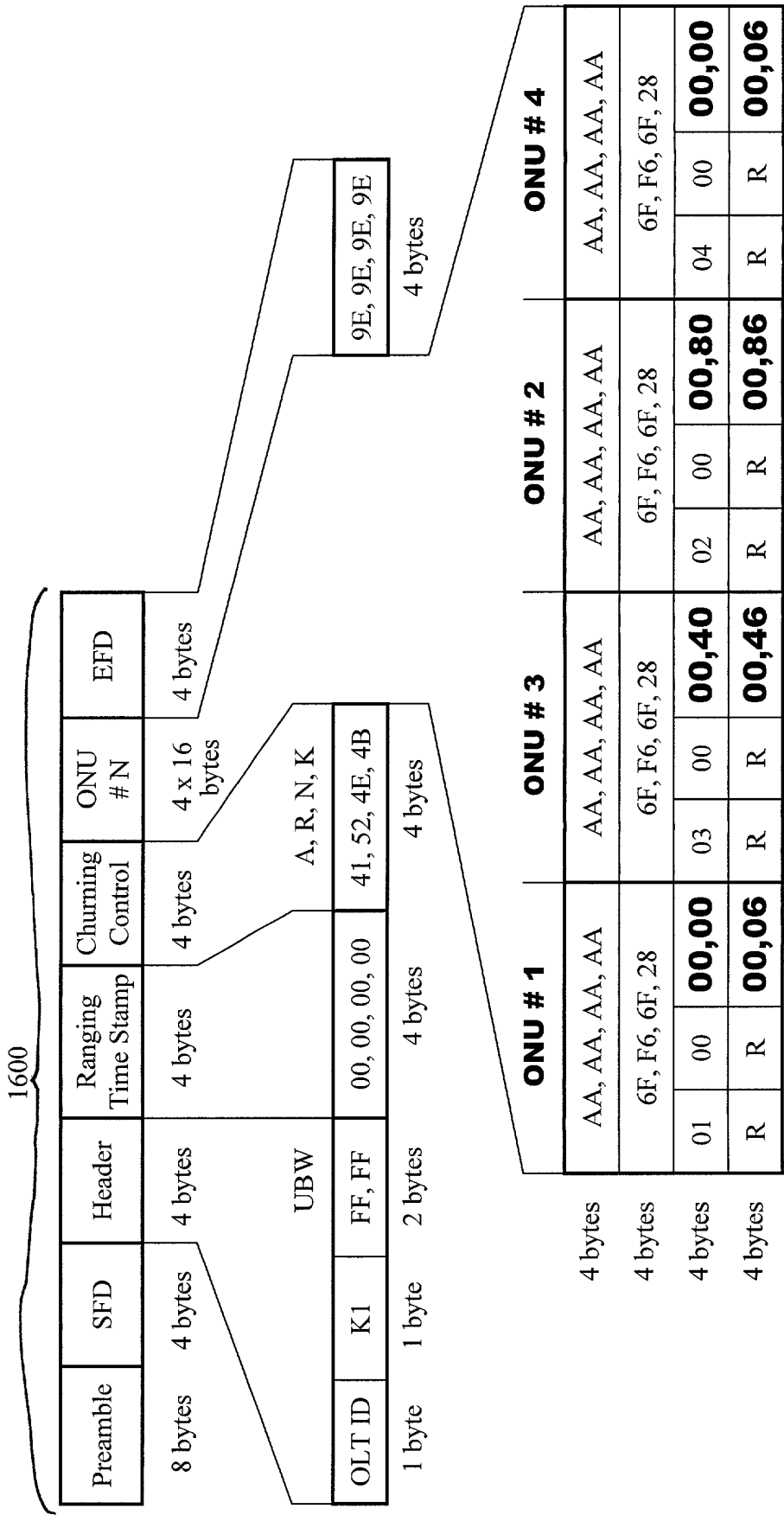


FIG. 17

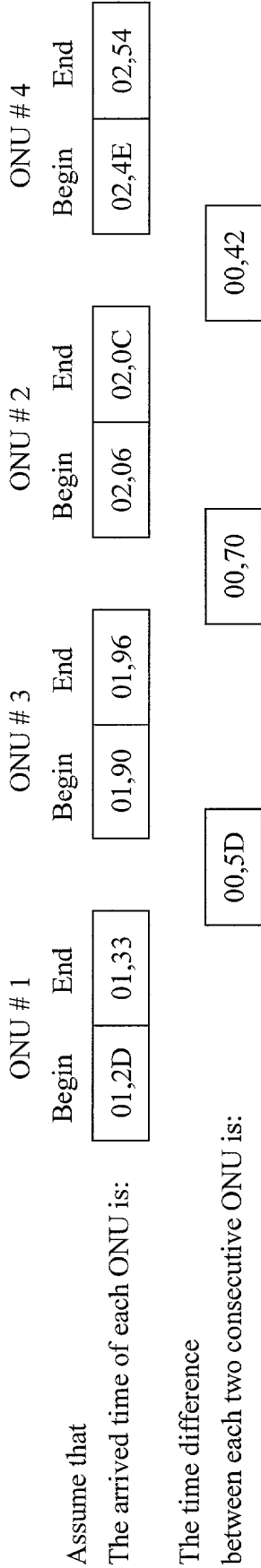


FIG. 18

Suppose that the ABAB and
ABAT of each ONU is:

ONU # 1		ONU # 3		ONU # 2		ONU # 4	
ABAB	ABAT	ABAB	ABAT	ABAB	ABAT	ABAB	ABAT
00,00	07,00	07,40	10,40	10,80	20,C0	20,40	32,80

Assume that

The arrived time of each ONU is:

ONU # 1		ONU # 3		ONU # 2		ONU # 4	
Begin	End	Begin	End	Begin	End	Begin	End
01,2D	08,2D	08,90	11,90	12,06	22,46	22,8E	34,CE

The time difference
between each two consecutive ONU is:

00,63	00,76	00,48
-------	-------	-------

FIG. 20

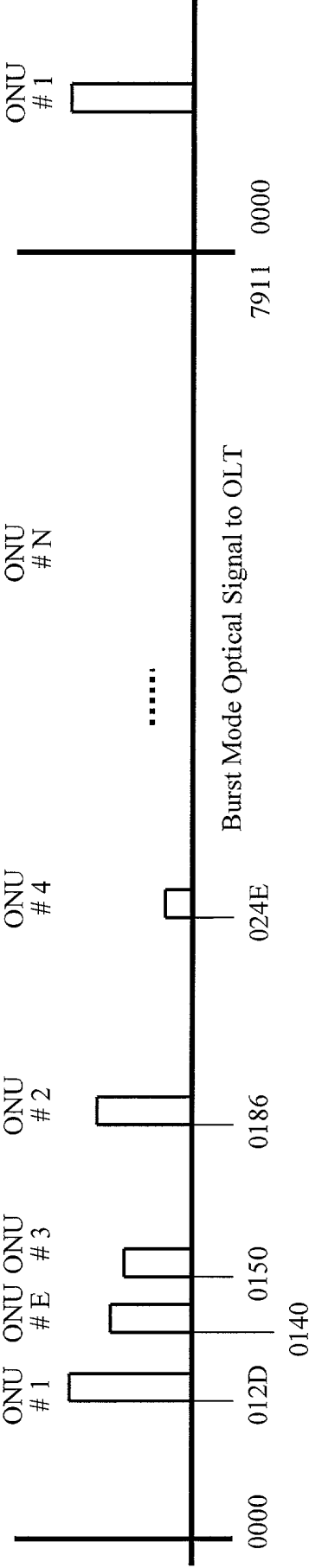


FIG. 21

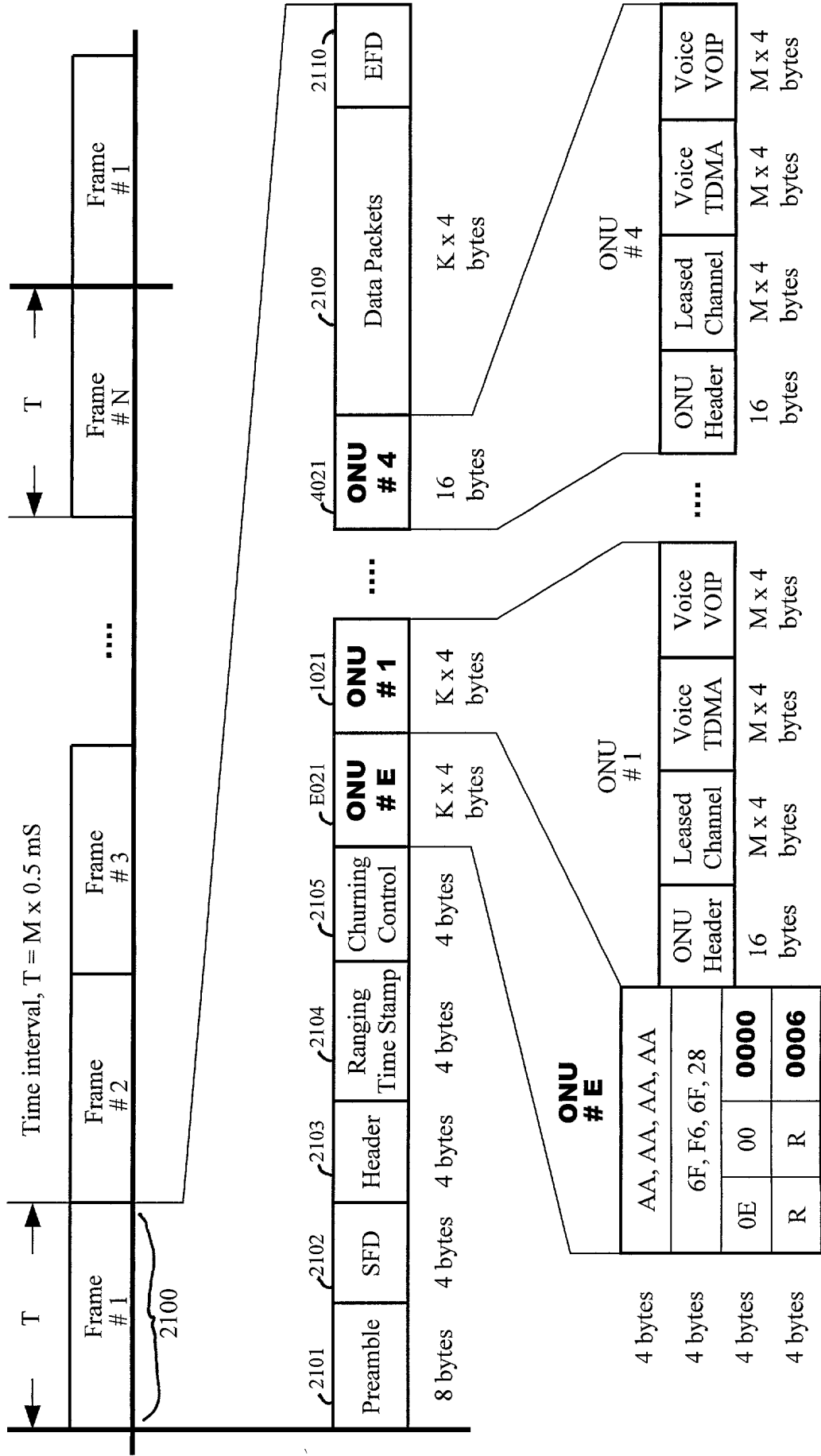


FIG. 22

	ONU # 1	ONU # E	ONU # 3	ONU # 2	ONU # 4
The arrived time of each ONU is:	01,2D	01,40	01,50	01,86	02,4E
The time difference between each two consecutive ONU is:	00,13	00,10	00,36	00,C8	
• Masking each time difference with FFC0.	00,00	00,00	00,00	00,C0	
If the result is less than or equal to 0040, then set the value to 0040.	00,40	00,40	00,40		
If the result is greater than 0040 then 0040 – the result				- 00,80	

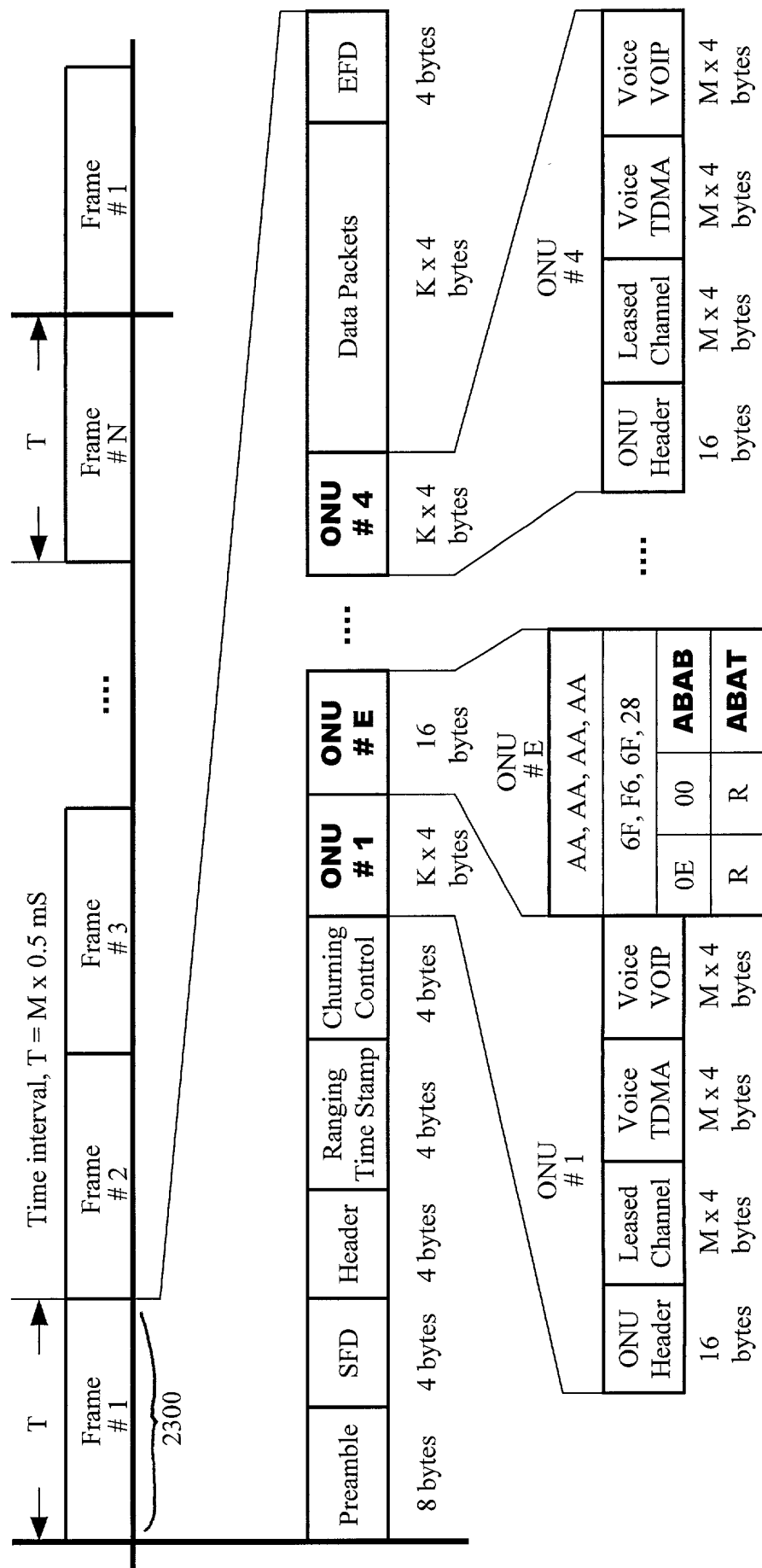
[illegible]

FIG. 24

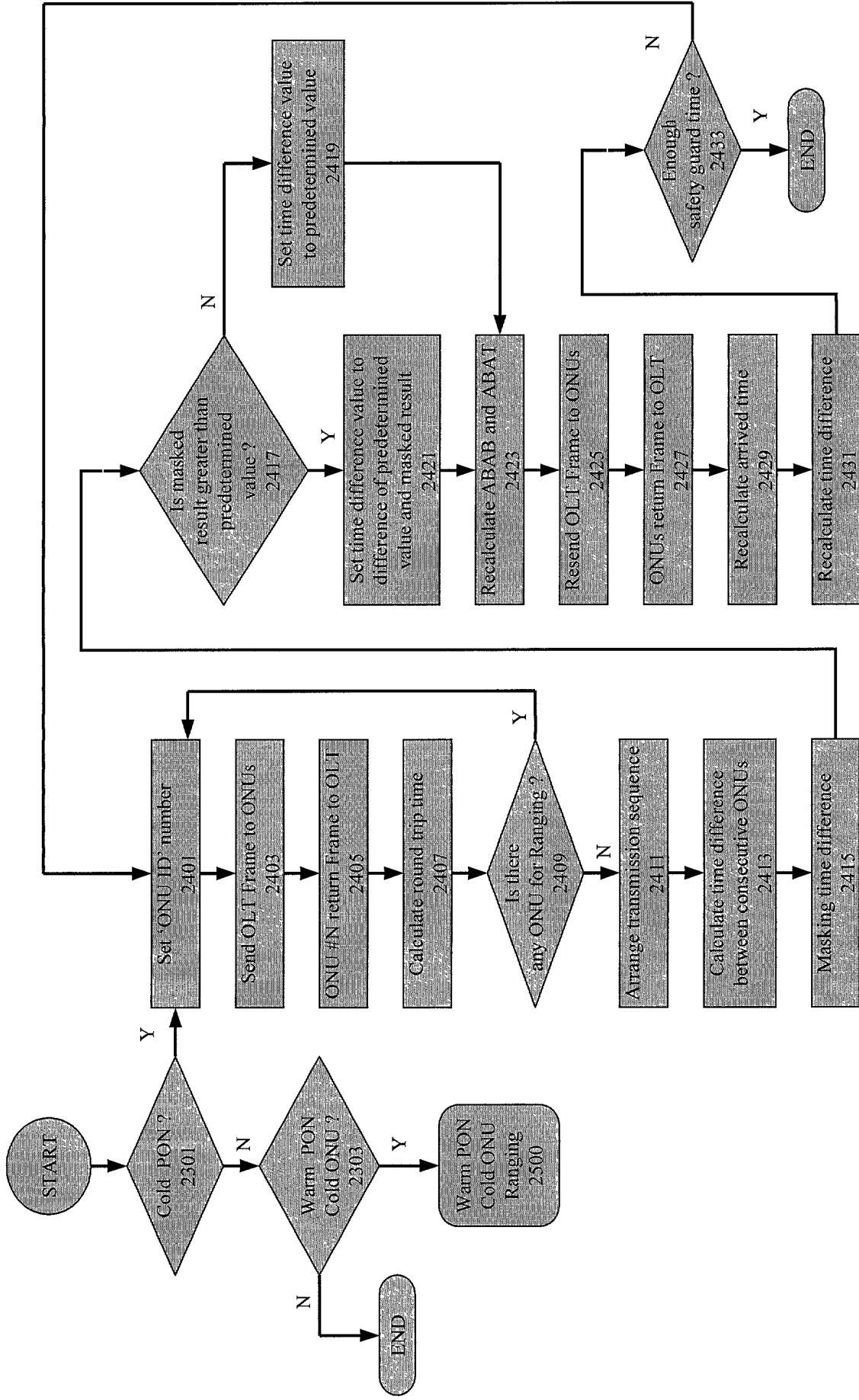
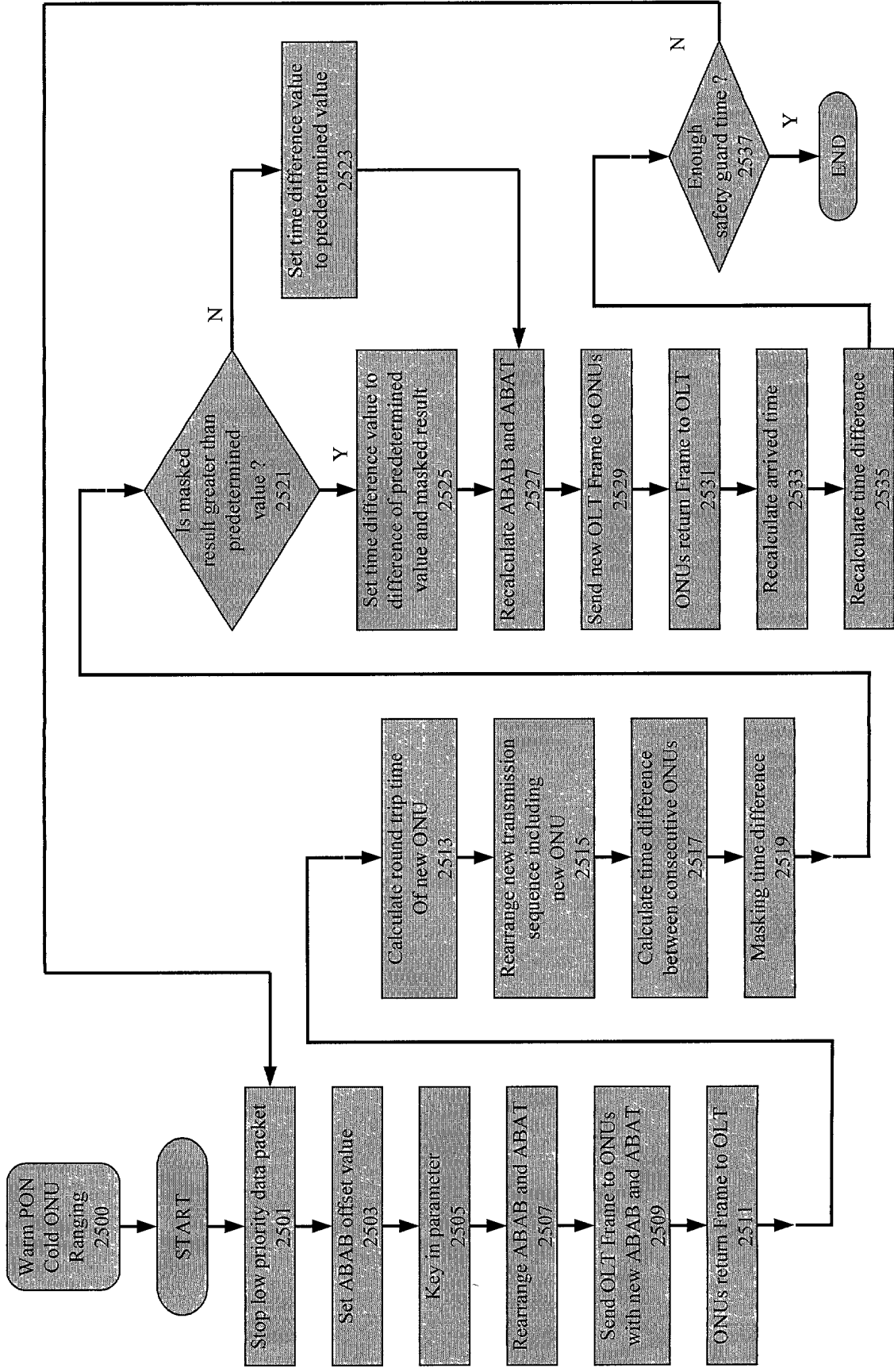


FIG. 25



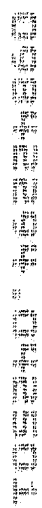
[illegible]

FIG. 27

FIG. 27

Assume that

The arrived time of each ONU is:

ONU # 1		ONU # E		ONU # 3		ONU # 2		ONU # 4	
Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
01,2D	08,2D	08,80	08,86	08,D0	11,D0	12,46	22,86	22,CE	35,0E

The time difference between each two consecutive ONU is:

ONU # 1	ONU # E	ONU # 3	ONU # 2	ONU # 4
00,53	00,4A	00,76	00,48	